

What is claimed is:

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1. An actuator assembly for moving an air valve to admit or release air to an air spring mounted in a vehicle, the air valve pneumatically communicated with the air spring, the air valve having a rod in contact with an axle of the vehicle, the vehicle having a cross member, the assembly comprising:

- a) a rail attached to the cross member; and
- b) an actuator attached to the rail, the actuator operable to move the air valve to admit or release air from the air bag so as to adjust the ride firmness of the vehicle.

2. The actuator assembly according to claim 1, further comprising:

- a) an actuator arm slidably attached to the rail and having a first end attached to the actuator, the actuator operable to move the arm; and
- b) a mounting plate having an end attached to the air valve and another end attached to a second end of the actuator arm,

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3. The actuator assembly according to claim 2, wherein the rail has a channel therein, a ball bearing located within the channel, the ball bearing having a stud extending from the ball bearing through the actuator arm and attached to an actuator shaft.

4. The actuator assembly according to claim 2, wherein a position plate is attached to the actuator arm and at least one indicator switch is mounted to the rail, the position plate operable to engage the switch as the actuator arm is moved, the switch generating an electrical signal representative of the position of the actuator arm relative to the axle.

Sub 437 5. The actuator assembly according to claim 2, wherein a second ball bearing is located within the channel spaced apart from the other ball bearing, the second ball bearing having a stud attached to the actuator arm.

6. The actuator assembly according to claim 4, wherein a control panel is connected to the indicator switch and to the linear actuator, the control panel providing a signal to the operator indicative of the ride firmness of the vehicle.

7. The actuator assembly according to claim 6, wherein the control panel has a control switch connected to the linear actuator, the control switch operable to turn the actuator on and off.

8. The actuator assembly according to claim 1, wherein a link is rotatably connected between the rod and the air valve.

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9. An actuator assembly comprising:

- a) a cross member of the vehicle;
- b) a rail having a lip attached to the cross member;
- c) an actuator attached to the rail;
- d) an actuator arm slidably attached to the rail and having a first end attached to the actuator, the actuator operable to linearly move the arm; and
- e) a mounting plate having an end attached to an air valve and another end attached to a second end of the actuator arm, the actuator operable to move the air valve between a first position in which air is admitted to an air bag mounted in a vehicle and a second position in which air is released from the air bag;
- f) an air hose pneumatically communicating the air valve and the air bag; and
- g) a rod having an end in contact with an axle of the vehicle and another end connected to the air valve.

10. The actuator assembly according to claim 9, further comprising:

- (a) a channel located within the rail;
- (b) a ball bearing located within the channel and retained by the lip; and
- (c) a stud extending from the ball bearing through the actuator arm and attached to an actuator shaft.

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11. The actuator assembly according to claim 9, further comprising:

- (a) a position plate attached to the actuator arm;
- (b) a first indicator switch mounted to the rail, the position plate operable to engage the first switch as the actuator arm is moved, the switch generating an electrical signal representative of the position of the actuator arm relative to the axle.

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12. The actuator assembly according to claim 11, further comprising:

- (a) a second indicator switch mounted to the rail, the position plate operable to engage the second switch as the actuator arm is moved, the second switch generating an electrical signal representative of the a soft ride firmness.

13. The actuator assembly according to claim 12, further comprising:

- (a) a third indicator switch mounted to the rail, the position plate operable to engage the third switch as the actuator arm is moved, the third switch generating an electrical signal representative of the a hard ride firmness.

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14. The actuator assembly according to claim 9, wherein a second ball bearing is located within the channel spaced apart from the other ball bearing, the second ball bearing having a stud attached to the actuator arm.

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15. The actuator assembly according to claim 13, wherein a control panel is connected to the indicator switches and to the linear actuator, the control panel providing a signal to the operator indicative of the ride firmness of the vehicle.

16. The actuator assembly according to claim 15, wherein the control panel has a control switch connected to the linear actuator, the control switch operable to turn the actuator on and off.

FIG. 10 - SEE 660

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17. An actuator assembly for moving an air valve between a first position in which air is admitted to an air bag mounted in a vehicle and a second position in which air is released from the air bag, the air valve pneumatically communicated with the air bag, the air valve having a rod in contact with an axle of the vehicle, the assembly comprising:

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- a) a rail attached to a cross member of the vehicle, the rail having a channel therein;
 - b) an actuator attached to the rail, the actuator having a moveable shaft;
 - c) an actuator arm attached to the rail and having a first end attached to the actuator, the actuator operable to linearly move the arm;
 - d) a ball bearing movably retained within the channel, the ball bearing having a stud extending from the ball bearing through the actuator arm and attached to the actuator shaft; and
 - e) a mounting plate having an end attached to the air valve and another end attached to a second end of the actuator arm, the actuator operable to move the air valve between the first and second positions so as to adjust the ride firmness of the vehicle.

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18. The actuator assembly according to claim 17, wherein a position plate is attached to the actuator arm and at least one indicator switch is mounted to the rail, the position plate operable to engage the switch as the actuator arm is moved, the switch generating an electrical signal representative of the position of the actuator arm relative to the axle.